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**Department of Earth Sciences and Petroleum**

**College of Science**

**Salahaddin University -Erbil**

**Subject: Sedimentary Rocks-Practical**

**Course Book 2nd year Geology**

**Lecturer's name M.Sc. Hisham Khalil Mustafa**

**Academic Year: 2022/2023**

**Course Book**

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| **1. Course name** | **Practical Sedimentary Rocks** |
| **2. Lecturer in charge** | **Hisham Khalil Mustafa** |
| **3. Department/ College** | **Earth sciences and petroleum/ Science** |
| **4. Contact** | **e-mail: Hisham.mustafa@su.edu.krd****Tel: (optional)** |
| **5. Time (in hours) per week**  | **Theory: 2** **Practical: 2**  |
| **6. Office hours** | **9am-3pm**  |
| **7. Course code** |  |
| **8. Teacher's academic profile**  |  **B.Sc. Salahaddin university-Erbil college of Science Dep. Of Geology 2001 Erbil -Iraq** **M. Sc. Mosul University college of Science Dep. Of Geology 2006 Mosul-Iraq** **General specialization Geology****Specific specialization Clastic Sedimentology** |
| **9. Keywords** | **Geology, petrology, sedimentary rocks**  |
| **10. Course overview:** The course will cover describing the physical, chemical, and biologic properties of the major types of sedimentary rocks, It covers the mineralogy, chemistry, textures, and sedimentary structures that characterize sedimentary rocks, and relates these features to the depositional origin of the rocks and their subsequent alteration by diagenetic processes during burial. The course will deal with the physical properties of siliciclastic rocks (sandstones, shales, conglomerates) and carbonate rocks (limestones and dolomites), it also discusses evaporites, cherts, iron-rich sedimentary rocks, phosphorites, and carbonaceous sedimentary rocks such as oil shales. |
| **11. Course objective:**Sedimentary petrology is a broad scientific discipline that encompasses study of all kinds of sedimentary rocks, including those that constitute a relatively small volume of total sedimentary rocks. These volumetrically minor rock types nonetheless provide valuable insight into Earth history, and some are economically significant.  |
| **12. Student's obligation** The student should attend all labs and prepare each lab report  |
| **13. Forms of teaching**Different forms of teaching will be used to reach the objectives of the course: power point presentations for the head titles and definitions and typical pictures of rock samples, and the main teaching object: the hand specimens of sedimentary rocks that are prepared, classified, ordered and numbered previously |
| **14. Assessment scheme**The students are required to do two closed book practical exam at the mid and end of the semester. The exams have 20 marks and the average of these exams is obtained, the attendance, classroom activities and weekly report 15 marks. Mid-semester Practical exam: 20 %Average 20%+ End-semester Practical exam: 20%  Laboratory participation and weekly report 15%  Total:35‌ |
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| **15. Course Reading List and References‌:** 1 - Boggs, S., Jr., 2009 , Petrology of Sedimentary Rocks: Cambridge University press.2- Pettijohn, F. J., 1975, Sedimentary Rocks, 3rd edn. : Harper and Row, New York, NY.3- Stow, D. A.V., 2005, Sedimentary Rocks in the Field: A Color Guide: Elsevier, Burlington, MA.4-Tucker, M. E, 2003, Sedimentary Rocks in the Field: John Wiley and Sons, Chichester. |
| **16. The Topics:** | **Lecturer's name** |
| *Week 1: September 2022* introduction to sedimentary petrology.*Week 2: October 2022* Sedimentary structures: classification (depositional, erosional or post-depositional). *Week 3: October2022* Shape, sphericity and roundess of grains. Calculation the degree of sphercity and roundess of sedimentary grains  *Week 4: October 2022* Conglomerates and breccias: description and classification.*Week 5: October 2022*Sandstones: description and classification. *Week 6: October 2022* Mudrocks: Description . *Weeks 7&8 : November 2019* Carbonate rocks: description.*Week 9: NOVEMBER 2022* Mid-semester practical exam. *Week 10: NOVEMBER 2022* Evaporates: description.*Week 11 : November 2022* Siliceous rocks: description. *Week 12: NOVEMBER 2019*Ferruginous and phosphates: description*.**Week 14: December 2022* end-semester practical exam. | 2 hrsHisham Khalil |
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| **17. Examinations:**

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| Q1)  a- Name of sedimentary structure………………………… b- current direction……………………………………………….  |
| Q2) Compare between A and B in name and grain size |
| Q3)  a Grain size……………………………………………. b- cement type …………………………………………… c- color…………………………………… |
| Q4)  a- Grain size……………………………………………. b- cement type …………………………………………… c- sorting ………………………………… |
| Q5)  a- Grain size……………………………………………. b- sedimentary structure …………………………………………… c- Mineralogical composition……………………………… |
| Q6)  a – Name ……………………………………………………. b- color …………………………………………… c- mineralogical composition…………………………………… |
| Q7)  b- Color……………………………………………………. c- grain size…………………………………………….. |
| Q8) Define roundess.  |
| Q9)1. Name of sedimentary structure…………………………………..
2. Type of sedimentary structure…………………………….
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| Q10) What is the difference between orthoconglomerate and paraconglomerate? |

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